DOCUMENT RESUME

ED 124 298 PS 008 648

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TITLE The Effects of Visual Analysis Training on Impulsive Children.
PUB DATE Apr 76
NOTE 6p.; Paper presented at the Annual Meeting of the American Educational Research Association (San Francisco, California, April 19-23, 1976)

EDRS PRICE MF-$0.83 HC-$1.67 Plus Postage.
DESCRIPTORS *Cognitive Development; *Conceptual Tempo; Early Childhood Education; *Kindergarten Children; Mediation Theory; *Research; *Training; Verbal Learning; Visual Stimuli
IDENTIFIERS *Impulsive Children

ABSTRACT

In this study, kindergarten children classified as impulsive received (1) visual analysis training involving either motor or verbal responses, (2) were trained only to delay their responses, or (3) were assinged to a control group receiving no training. While all treatment groups showed a significant decrease in errors on the Matching Familiar Figures test immediately after training, only the group receiving visual analysis training involving verbalization was significantly different from a control group one month later. The importance of training children to use search strategies when attempting to modify impulsivity was supported. The role of verbalization was discussed and related to data from verbal learning experiments. (SB)

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THE EFFECTS OF VISUAL ANALYSIS TRAINING ON IMPULSIVE CHILDREN

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Studies have shown the performance of reflective children to be superior to their impulsive peers on a variety of academic tasks such as reading (Kagan, 1965) and arithmetic (Cathcart & Liedtke, 1969). Kilburg and Siegel (1973) and Siegel, Kirasic, and Kilburg (1973) found that reflective children performend significantly better than impulsives on a forced-choice recognition memory task on which successful responding was dependent on a visual process of feature analysis. Reflectives spent significantly longer periods of time examining the stimuli and performed a more detailed analysis than their impulsive peers. These performance differences are congruent with earlier findings (Drake, 1970; Siegelman, 1969; Zelniker, Jeffrey, Ault, & Parsons, 1972).

Kilburg and Siegel (1973) concluded that the tendency to perform a detailed feature analysis is perhaps the most significant component of the cognitive-perceptual basis underlying the reflection-impulsivity dimension. In addition, they maintained that although verbal labels enhance recognition performance, it is highly likely that the role of verbal labels is an indirect one. In order to label a stimulus, feature analysis must first be performed and, thus, labeling would increase the probability of a thorough feature analysis.

These findings suggest that training impulsive children to perform a more detailed analysis of the stimuli could modify their conceptual tempo and lead to improved performance. Modification of impulsivity using visual analysis training and the role of verbalization in this process were explored in this study.

The study involved a 4 (treatment) X 3 (repeated measures) design. Dependent variables were response time and total number of errors on the Matching Familiar Figures (MFF) test. Pre-, post-, and delayed postscores were obtained. Initially, the MFF was administered individually to 170 kindergarten children from four predominately middle-class elementary schools. Those subjects classified as impulsive according to this instrument served as subjects for this experiment and were randomly assigned to one of three treatment groups or a control group. Training extended over a period of three weeks. Each subject participated in a 15- to 30-minute individual training session each week. All treatment groups were exposed to identical training materials consisting of matching-to-sample and memory tasks. The MFF was administered again immediately after training and then one month later. Items on the MFF were randomly presented for each administration.

The study employed two different methods of training visual analysis: training with motor involvement and training employing verbalization. Both training procedures were designed to direct the subject's attention to the components of the stimuli and teach recognition of differences among the components. Children trained in visual analysis through motor involvement traced and drew components of stimuli, while the group receiving visual analysis training using verbalization were taught to label and describe details of pictures. Subjects in a third group were trained simply to delay their responses and were given no direct training in visual analysis. They were experimentally forced to extend their examination-of-stimulus time and delay their selection responses. This condition was designed to investigate the hypothesis that forced delay of responses would result in subjects spontaneously using the additional time to perform more detailed

analyses of the stimuli. Children in the control group received no training and were only administered the criterion tasks.

The data generated from this study were analyzed using a repeated measures multivariate analysis of variance. Tukey's a posteriori test of honestly significant differences was used to evaluate differences between pairs of means within the interaction. All treatment groups demonstrated a decrease in errors on the MFF immediately after training. On a delayed posttest (DPT) administered one month after training, only the group receiving visual analysis training requiring verbal responses was significantly different from the control group. While both types of visual analysis training forced the subjects to attend to the details of the stimuli, verbalization training allowed for more thorough processing of the differences among the stimuli. The child was trained to interact with the material in a meaningful manner using his own idiosyncratic speech. A wide variety of appropriate labels and descriptions were applied to the stimuli by subjects in this group. Data from verbal learning experiments support the facilitative effects of subject-generated as opposed to experimenter-provided sentence elaborations (Bobrow & Bower, 1969).

Subjects in the verbalization group demonstrated increased response time on the immediate posttest (IPT) but not on the DPT. The motor group was able to decrease their error score on the IPT while not altering their response time significantly. Delay training modified both response time and errors temporarily on the MFF. These results demonstrate that improved performance can occur without a corresponding increase in response time and that a few sessions of visual analysis training can have durable effects on a reportedly stable dimension such as reflection-impulsivity.

In conclusion, it appears that simply training impulsive children to delay their responses will not appreciably alter their response time or errors on the MFF, although subjects seem to use the temporary increase in response time effectively. Training must involve teaching the child more efficient search strategies. While motor responses can serve to increase attention to details, training impulsive children to attend to visual details by applying their own idiosyncratic labels and descriptions to components of stimuli is more effective in reducing error scores on visual discrimination tasks.

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